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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/027,727 | 12/21/2001 | Chenghua Oliver Han | 22.1450 | 9783 |
| 7590 | 12/17/2003 | | EXAMINER | |
| SCHLUMBERGER TECHNOLOGY CORPORATION 14910 Airline Road P.O. Box 1590 Rosharon, TX 77583-1590 | | | JOHNSON, STEPHEN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3641 | |

DATE MAILED: 12/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) |
|------------------------------|--------------------|----------------------|
| | 10/027,727 | HAN, CHENGHUA OLIVER |
| | Examiner | Art Unit |
| | Stephen M. Johnson | 3641 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

Disposition of Claims

4) Claim(s) 1,12 and 17-32 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,12 and 17-32 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) 1,12 and 17-32 are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. ____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) The translation of the foreign language provisional application has been received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s). _____ .
2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) Notice of Informal Patent Application (PTO-152)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. 6) Other: _____.

1. This application contains claims directed to the following patentably distinct species of the claimed invention: The application contains numerous different species with associated methods for making and using the species. The species are defined as listed below:

- a) number of grooves: 1, 2, 4, 5, or 6;
- b) shape of grooves: V-notch or U-notch;
- c) groove location: inside or outside; and
- d) groove orientation: axially (see figs. 4 or 10) or circumferentially (see fig. 11).

In order to elect a single species for prosecution, applicant should select one item from each of groups a) through d) above.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

Applicant is advised that a reply to this requirement **must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added.** An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. Applicant's previous election wherein species a is elected is not what is required to make an election. Applicant must select one item from each of groups a) through d) above. Any response that does not include this will be considered a **non-responsive response**.

3. The substitute specification, filed on 6/27/2003, has been denied entry because it was not accompanied by a statement that the substitute specification does not contain any new matter.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 12, 17, and 21-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Renfro et al..

Renfro et al. disclose a perforating system and associated method comprising:

| | |
|--|----|
| a) a shaped charge with charge case; | 14 |
| b) an explosive material; | 28 |
| c) a plurality of slots about which the charge case fractures; | 16 |
| d) a liner; and | 50 |

e) a perforating string having a plurality of shaped charges. col. 1, lines 8-12

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Renfro et al. in view of Markel et al..

Renfro et al. apply as previously recited. However, undisclosed is a perforating string that is a loading tube and carrier; a spiral gun, or a strip gun. Markel et al. teach a perforating string that is a loading tube and carrier (figs. 6A and 6B); a spiral gun (figs. 5A or 5B); or a strip gun (figs. 2B or 4). Applicant is substituting a particular type of perforating string for a specific type of perforating string in an analogous art setting as explicitly encouraged by Markel et al.. Markel et al. encourages substituting one perforating string for another by giving numerous alternative examples of prior art perforating strings known in this art. It would have been obvious to a person of ordinary skill in this art at the time of the invention to apply the teachings of Markel et al. to the Renfro et al. perforating system and have a perforating system with an alternative perforating string.

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1, 12, 17-18, and 21-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Chawla et al..

Chawla et al. disclose a perforating system and associated method comprising:

| | |
|--|------------|
| a) a shaped charge with charge case; | 36 |
| b) an explosive material; | 18 |
| c) a plurality of slots about which the charge case fractures; | 46 |
| d) a liner; and | 22 |
| e) a perforating string having a plurality of shaped charges. | see fig. 5 |

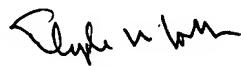
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Eriksson, Christopher, Owen et al., McCloud et al., Altenau et al., and Nikowitsch disclose other state of the art perforators.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen M. Johnson whose telephone number is 703-306-4158. The examiner can normally be reached on Tuesday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone can be reached on 703-306-4198. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-4177.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9326. The fax phone number for after final communications is (703) 872-9327.

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STEPHEN M. JOHNSON
PRIMARY EXAMINER

SMJ

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